



# FACT SHEET

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U.S. ARMY CHEMICAL MATERIALS AGENCY

## Explosive Destruction System Overview



*The Explosive Destruction System destroys recovered chemical warfare materiel while protecting workers and the environment. The larger EDS 2, above, entered service in 2003.*

The U.S. Army Non-Stockpile Chemical Materiel Project (NSCMP) designed the Explosive Destruction System (EDS) to provide on-site treatment of chemical warfare materiel in a safe, environmentally sound manner. NSCMP maintains five transportable EDS units to support both planned and quick-response operations.

The EDS uses cutting charges to explosively access chemical munitions, eliminating their explosive capacity before the chemical agent is neutralized. The system's main component, a sealed, stainless steel vessel, contains all the blast, vapor and fragments from the process. Treatment is confirmed by sampling residual liquid and air from the vessel prior to reopening the EDS.

The success of the EDS 1 at sites such as Aberdeen Proving Ground, Md., and Spring Valley in Washington, D.C., led to the development of the EDS 2. Constructed to contain larger materiel in both size and

explosive content, EDS 2 weighs 68,000 pounds, compared to the 20,000-pound EDS 1. Since both systems are mounted on trailers, they can be transported where they are needed.

Both systems are approved to handle bomblets, 75 mm projectiles, 4.2-inch mortars and Livens projectiles. The EDS 2 can also handle the same items, plus 155 mm and 8-inch projectiles. The EDS 1 can treat up to three rounds at a time, while the EDS 2 can process up to six rounds at once, enabling the Army to treat more items in less time while maintaining high levels of safety and efficiency. The system has been proven to treat blister agents such as mustard, nerve and blood agents, chloropicrin and phosgene.

The amount of explosive that can be used in the systems is rated for TNT equivalent, the standard for measuring the potential energy of explosives. The EDS 1 can handle up to 1.5 pounds of TNT equivalent, while the EDS 2

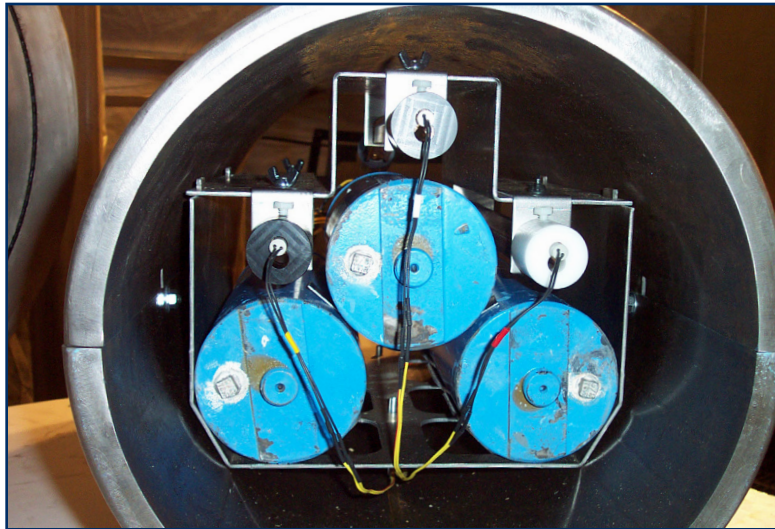
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## **Explosive Destruction System Overview (continued)**

can handle up to 4.8 pounds of TNT equivalent. Efforts are under way to recertify the chamber for higher amounts with the American Society of Mechanical Engineers.

The EDS has been a huge success for the Chemical Materials Agency. The unit has operated in multiple locations, including public locations and military installations, processing more than 1,600 items in full compliance with all safety and environmental regulatory requirements.



*Three rounds are loaded into the fragment suppression system (FSS) for treatment.*

### **How it Works:**

- Operators bring the overpacked munition into the environmental enclosure and monitor it to determine level of protective dress required for operators
- Operators unpack the munition and place it in the munition holder
- Linear shaped charges are attached along the munition body
- Operators slide the item into the EDS vessel
- The door is closed and sealed, confirmed by a helium leak test
- Operators remotely detonate the linear shaped charges to access the munition body and its chemical fill and eliminate its explosive capacity
- Once neutralization chemicals are added, the vessel is heated if needed and rotated to mix the contents and neutralize the chemical fill
- A liquid neutralant sample is tested in the onsite laboratory to ensure treatment is complete
- After successful treatment is confirmed, liquid and solid waste is put into 55 gallon drums
- The vessel undergoes a water rinse, is heated if necessary, and is drained again
- Waste products are shipped to an approved disposal facility and disposed of in accordance with applicable federal, state and local laws